



SEQUENCE LISTING

<110> Imamura, Toru
Asada, Masahiro
Oka, Syuichi
Suzuki, Masashi
Yoneda, Atsuko
Ota, Keiko
Oda, Yuko
Miyakawa, Kazuko
Orikasa, Noriko
Asada, Chie
Kojima, Tetsuhito

<120> HEPARIN-BINDING PROTEINS MODIFIED WITH SUGAR CHAINS,
METHOD OF PRODUCING THE SAME AND PHARMACEUTICAL
COMPOSITIONS CONTAINING THE SAME

<130> PH-559US

<140> 09/121, 017

<141> 1998-07-22

<150> 307721/1997

<151> 1997-11-10

<160> 30

<170> PatentIn Ver. 2.0

<210> 1

<211> 221

<212> PRT

<213> Artificial Sequence

<400> 1

Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Phe Phe Val Gly Gly

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Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu

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30

Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Pro Asp Asp Glu Asp Val

35

40

45

Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly Ser Gly

50

55

60

Asp Leu Asp Asp Leu Glu Asp Ser Met Ile Gly Pro Glu Val Val His

65

70

75

80

Pro Leu Val Pro Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu Leu Tyr

85

90

95

Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val

100

105

110

Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser

115

120

125

Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln

130

135

140

Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro

145

150

155

160

Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn

165

170

175

Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu

180

185

190

Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln

195

200

205

Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp

210

215

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<210> 2

<211> 663

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: fusion of sequence for a part of human rydocal and a part of human fibroblast growth factor 1

<220>

<221> CDS

<222> (1)..(663)

<400> 2

atg gcc ccc gcc cgt ctg ttc gcg ctg ctg ctg ttc ttc gta ggc gga 48
Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Phe Phe Val Gly Gly

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10

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gtc gcc gag tcg atc cga gag act gag gtc atc gac ccc cag gac ctc 96
Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu

20

25

30

cta gaa ggc cga tac ttc tcc gga gcc cta cca gac gat gag gat gta 144
Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Pro Asp Asp Glu Asp Val

35

40

45

gtg ggg ccc ggg cag gaa tct gat gac ttt gag ctg tct ggc tct gga 192
Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly Ser Gly

50

55

60

gat ctg gat gac ttg gaa gac tcc atg atc ggc cct gaa gtt gtc cat 240
Asp Leu Asp Asp Leu Glu Asp Ser Met Ile Gly Pro Glu Val Val His

65	70	75	80	
				288
ccc ttg gtg cct cta gat gct aat tac aag aag ccc aaa ctc ctc tac				288
Pro Leu Val Pro Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu Leu Tyr				
85	90	95		
				336
tgt agc aac ggg ggc cac ttc ctg agg atc ctt ccg gat ggc aca gtg				336
Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val				
100	105	110		
				384
gat ggg aca agg gac agg agc gac cag cac att cag ctg cag ctc agt				384
Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser				
115	120	125		
				432
gcg gaa agc gtg ggg gag gtg tat ata aag agt acc gag act ggc cag				432
Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln				
130	135	140		
				480
tat ttg gcc atg gac acc gac ggg ctt tta tac ggc tca cag aca cca				480
Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro				
145	150	155	160	
				528
aat gag gaa tgt ttg ttc ctg gaa agg ctg gag gag aac cat tac aac				528
Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn				
165	170	175		
				576
acc tat ata tcc aag aag cat gca gag aag aat tgg ttt gtt ggc ctc				576
Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu				

180 185 190

aag aag aat ggg agc tgc aaa cgc ggt cct cgg act cac tat ggc cag 624
Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln

195 200 205

aaa gca atc ttg ttt ctc ccc ctg cca gtc tct tct gat 663
Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp

210 215 220

<210> 3

<211> 175

<212> PRT

<213> Artificial Sequence

<400> 3

Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val

1 5 10 15

Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala

20 25 30

Arg Ala Asn Gly Thr Leu Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu

35 40 45

Leu Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly

50 55 60

Thr Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln
65 70 75 80

Leu Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr
85 90 95

Gly Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln
100 105 110

Thr Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His
115 120 125

Tyr Asn Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val
130 135 140

Gly Leu Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr
145 150 155 160

Gly Gln Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp
165 170 175

<210> 4

<211> 525

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: fusion of
sequence for a part of mouse fibroblast growth factor 6 and
a part of human fibroblast growth factor 1

<220>

<221> CDS

<222> (1)..(525)

<400> 4

atg tcc cgg gga gca gga cgt gtt cag ggc acg ctg cag gct ctc gtc 48
Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val
1 5 10 15

ttc tta ggc gtc cta gtg ggc atg gtg gtg ccc tca cct gcc ggc gcc 96
Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala
20 25 30

cgc gcc aac ggc acg cta ctg gac gct aat tac aag aag ccc aaa ctc 144
Arg Ala Asn Gly Thr Leu Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu
35 40 45

ctc tac tgt agc aac ggg ggc cac ttc ctg agg atc ctt ccg gat ggc 192
Leu Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly
50 55 60

aca gtg gat ggg aca agg gac agg agc gac cag cac att cag ctg cag 240
Thr Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln
65 70 75 80

ctc agt gcg gaa agc gtg ggg gag gtg tat ata aag agt acc gag act 288
Leu Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr

85

90

95

ggc cag tac ttg gcc atg gac acc gac ggg ctt tta tac ggc tca cag 336
Gly Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln

100

105

110

aca cca aat gag gaa tgt ttg ttc ctg gaa agg ctg gag gag aac cat 384
Thr Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His

115

120

125

tac aac acc tat ata tcc aag aag cat gca gag aag aat tgg ttt gtt 432
Tyr Asn Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val

130

135

140

ggc ctc aag aag aat ggg agc tgc aaa cgc ggt cct cgg act cac tat 480
Gly Leu Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr

145

150

155

160

ggc cag aaa gca atc ttg ttt ctc ccc ctg cca gtc tct tct gat 525
Gly Gln Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp

165

170

175

<210> 5

<211> 181

<212> PRT

<213> Artificial Sequence

<400> 5

Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val

1

5

10

15

Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala

20

25

30

Arg Ala Gln Gly Thr Leu Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu

35

40

45

Leu Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly

50

55

60

Thr Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln

65

70

75

80

Leu Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr

85

90

95

Gly Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln

100

105

110

Thr Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Ala Ala

115

120

125

Thr Pro Ala Pro Asn His Tyr Asn Thr Tyr Ile Ser Lys Lys His Ala

130 135 140

Glu Lys Asn Trp Phe Val Gly Leu Lys Lys Asn Gly Ser Cys Lys Arg

145 150 155 160

Gly Pro Arg Thr His Tyr Gly Gln Lys Ala Ile Leu Phe Leu Pro Leu

165 170 175

Pro Val Ser Ser Asp

180

<210> 6

<211> 543

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: fusion of sequence for a part of mouse fibroblast growth factor 6, a part of human fibroblast growth factor 1 and an artificial sequence

<220>

<221> CDS

<222> (1)..(543)

<400> 6

atg tcc cgg gga gca gga cgt gtt cag ggc acg ctg cag gct ctc gtc 48
Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val
1 5 10 15

ttc tta ggc gtc cta gtg ggc atg gtg gtg ccc tca cct gcc ggc gcc 96
Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala
20 25 30

cgc gcc caa ggc acg cta ctg gac gct aat tac aag aag ccc aaa ctc 144
Arg Ala Gln Gly Thr Leu Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu
35 40 45

ctc tac tgt agc aac ggg ggc cac ttc ctg agg atc ctt ccg gat ggc 192
Leu Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly
50 55 60

aca gtg gat ggg aca agg gac agg agc gac cac att cag ctg cag 240
Thr Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln
65 70 75 80

ctc agt gcg gaa agc gtg ggg gag gtg tat ata aag agt acc gag act 288
Leu Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr
85 90 95

ggc cag tac ttg gcc atg gac acc gac ggg ctt tta tac ggc tca cag 336
Gly Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln

100 105 110 384
aca cca aat gag gaa tgt ttg ttc ctg gaa agg ctg gag gag gct gct
Thr Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Ala Ala

115 120 125 432
act cca gct cca aac cat tac aac acc tat ata tcc aag aag cat gca
Thr Pro Ala Pro Asn His Tyr Asn Thr Tyr Ile Ser Lys Lys His Ala

130 135 140 480
gag aag aat tgg ttt gtt ggc ctc aag aag aat ggg agc tgc aaa cgc
Glu Lys Asn Trp Phe Val Gly Leu Lys Lys Asn Gly Ser Cys Lys Arg

145 150 155 160 528
ggc cct cgg act cac tat ggc cag aaa gca atc ttg ttt ctc ccc ctg
Gly Pro Arg Thr His Tyr Gly Gln Lys Ala Ile Leu Phe Leu Pro Leu

165 170 175 543
cca gtc tct tct gat
Pro Val Ser Ser Asp

180

<210> 7
<211> 30
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer for PCR

<400> 7

ttgtcgaccc accatggccc ccgccccgtct

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<210> 8

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer for PCR

<400> 8

ttgatatcta gaggcaccaa gggatg

26

<210> 9

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer for PCR

<400> 9

gcgtcgacag cgctaattac aagaagccca aactc

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<210> 10

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer for PCR

<400> 10

ccgaattcga attcttaat cagaagagac tgg

33

<210> 11

<211> 64

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer for PCR

<400> 11

gcgtcgaccc accatgtccc ggggagcagg acgtgttcag ggcacgctgc aggctctcgt 60

cttc

64

<210> 12

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer for PCR

<400> 12

gcgatatcca gtagcgtgcc gttggcgcg

29

<210> 13

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer for PCR

<400> 13

gcgtcgaccc accatgtc

18

<210> 14

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer for PCR

<400> 14

gcgatatatcca gtagcgtgcc ttgggcgcg

29

<210> 15

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer for PCR

<400> 15

gctggaggag gctgctactc cagctccaaa ccattaca

38

<210> 16

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer for PCR

<400> 16

gccgctctag aacttagtgga t

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<210> 17

<211> 200

<212> PRT

<213> Artificial Sequence

<400> 17

Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Leu Phe Phe Val Gly Gly

1

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15

Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu

20

25

30

Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Pro Asp Asp Glu Asp Val

35

40

45

Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly Ser Gly

50

55

60

Asp Ala Asn Tyr Lys Lys Pro Lys Leu Leu Tyr Cys Ser Asn Gly Gly

65

70

75

80

His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val Asp Gly Thr Arg Asp

85

90

95

Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser Ala Glu Ser Val Gly

100 105 110

Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln Tyr Leu Ala Met Asp

115 120 125

Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro Asn Glu Glu Cys Leu

130 135 140

Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn Thr Tyr Ile Ser Lys

145 150 155 160

Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu Lys Lys Asn Gly Ser

165 170 175

Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln Lys Ala Ile Leu Phe

180 185 190

Leu Pro Leu Pro Val Ser Ser Asp

195 200

<210> 18

<211> 600

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: fusion of sequence for a part of human ryudocan and a part of human fibroblast growth factor 1

<220>

<221> CDS

<222> (1)..(600)

<400> 18

atg gcc ccc gcc cgt ctg ttc gcg ctg ctg ctg ttc gta ggc gga 48
Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Phe Phe Val Gly Gly
1 5 10 15

gtc gcc gag tcg atc cga gag act gag gtc atc gac ccc cag gac ctc 96
Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu
20 25 30

cta gaa ggc cga tac ttc tcc gga gcc cta cca gac gat gag gat gta 144
Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Pro Asp Asp Glu Asp Val
35 40 45

gtg ggg ccc ggg cag gaa tct gat gac ttt gag ctg tct ggc tct gga 192
Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly Ser Gly
50 55 60

gat gct aat tac aag aag ccc aaa ctc ctc tac tgt agc aac ggg ggc 240
Asp Ala Asn Tyr Lys Lys Pro Lys Leu Leu Tyr Cys Ser Asn Gly Gly

65	70	75	80
cac ttc ctg agg atc ctt ccg gat ggc aca gtg gat ggg aca agg gac			288
His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val Asp Gly Thr Arg Asp			
85	90	95	
agg agc gac cag cac att cag ctg cag ctc agt gcg gaa agc gtg ggg			336
Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser Ala Glu Ser Val Gly			
100	105	110	
gag gtg tat ata aag agt acc gag act ggc cag tac ttg gcc atg gac			384
Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln Tyr Leu Ala Met Asp			
115	120	125	
acc gac ggg ctt tta tac ggc tca cag aca cca aat gag gaa tgt ttg			432
Thr Asp Gly Leu Leu Tyr Gly Ser Thr Glu Thr Gln Tyr Leu Ala Cys Leu			
130	135	140	
ttc ctg gaa agg ctg gag gag aac cat tac aac acc tat ata tcc aag			480
Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn Thr Tyr Ile Ser Lys			
145	150	155	160
aag cat gca gag aag aat tgg ttt gtt ggc ctc aag aag aat ggg agc			528
Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu Lys Lys Asn Gly Ser			
165	170	175	
tgc aaa cgc ggt cct cg ^g act cac tat ggc cag aaa gca atc ttg ttt			576
Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln Lys Ala Ile Leu Phe			

180 185 190

ctc ccc ctg cca gtc tct tct gat 600

Leu Pro Leu Pro Val Ser Ser Asp

195 200

<210> 19

<211> 200

<212> PRT

<213> Artificial Sequence

<400> 19

Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Leu Phe Phe Val Gly Gly

1 5 10 15

Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu

20 25 30

Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Ser Asp Asp Glu Asp Val

35 40 45

Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly Ser Gly

50 55 60

Asp Ala Asn Tyr Lys Lys Pro Lys Leu Leu Tyr Cys Ser Asn Gly Gly

65 70 75 80

His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val Asp Gly Thr Arg Asp

85

90

95

Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser Ala Glu Ser Val Gly

100

105

110

Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln Tyr Leu Ala Met Asp

115

120

125

Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro Asn Glu Glu Cys Leu

130

135

140

Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn Thr Tyr Ile Ser Lys

145

150

155

160

Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu Lys Lys Asn Gly Ser

165

170

175

Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln Lys Ala Ile Leu Phe

180

185

190

Leu Pro Leu Pro Val Ser Ser Asp

195

200

<210> 20

<211> 600

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: fusion of sequence for a part of human ryudocan and a part of human fibroblast growth factor 1

<220>

<221> CDS

<222> (1)..(600)

<400> 20

atg gcc ccc gcc cgt ctg ttc gcg ctg ctg ctg ttc gta ggc gga 48
Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Leu Phe Phe Val Gly Gly
1 5 10 15

gtc gcc gag tcg atc cga gag act gag gtc atc gac ccc cag gac ctc 96
Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu
20 25 30

cta gaa ggc cga tac ttc tcc gga gcc cta tca gac gat gag gat gta 144
Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Ser Asp Asp Glu Asp Val
35 40 45

gtg ggg ccc ggg cag gaa tct gat gac ttt gag ctg tct ggc tct gga 192
Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly Ser Gly
50 55 60

gat gct aat tac aag aag ccc aaa ctc ctc tac tgt agc aac ggg ggc 240
Asp Ala Asn Tyr Lys Lys Pro Lys Leu Leu Tyr Cys Ser Asn Gly Gly
65 70 75 80

cac ttc ctg agg atc ctt ccg gat ggc aca gtg gat ggg aca agg gac 288
His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val Asp Gly Thr Arg Asp
85 90 95

agg agc gac cag cac att cag ctg cag etc agt gcg gaa agc gtg ggg 336
Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser Ala Glu Ser Val Gly
100 105 110

gag gtg tat ata aag agt acc gag act ggc cag tac ttg gcc atg gac 384
Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln Tyr Leu Ala Met Asp
115 120 125

acc gac ggg ctt tta tac ggc tca cag aca cca aat gag gaa tgt ttg 432
Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro Asn Glu Glu Cys Leu
130 135 140

ttc ctg gaa agg ctg gag gag aac cat tac aac acc tat ata tcc aag 480
Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn Thr Tyr Ile Ser Lys
145 150 155 160

aag cat gca gag aag aat tgg ttt gtt ggc ctc aag aag aat ggg agc 528
Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu Lys Lys Asn Gly Ser
165 170 175

tgc aaa cgc ggt cct cg^g act cac tat ggc cag aaa gca atc ttg ttt 576
 Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln Lys Ala Ile Leu Phe
 . . .
 180 185 190

ctc ccc ctg cca gtc tct tct gat 600
 Leu Pro Leu Pro Val Ser Ser Asp
 195 200

<210> 21
<211> 254
<212> PRT
<213> Artificial Sequence

<400> 21
Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Leu Phe Phe Val Gly Gly

Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu
20 25 30

Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Pro Asp Asp Glu Asp Val
35 40 45

Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly
50 55 60

Asp Leu Asp Asp Leu Glu Asp Ser Met Ile Gly Pro Glu Val Val His
65 70 75 80

Pro Leu Val Pro Leu Asp Asn His Ile Pro Glu Arg Ala Gly Ser Gly
85 90 95

Ser Gln Val Pro Thr Glu Pro Lys Lys Leu Glu Glu Asn Glu Val Ile
100 105 110

Pro Lys Arg Ile Ser Pro Val Ala Asn Tyr Lys Lys Pro Lys Leu Leu
115 120 125

Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly Thr
130 135 140

Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu
145 150 155 160

Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly
165 170 175

Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr
180 185 190

Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His Tyr
195 200 205

Asn Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly

210

215

220

Leu Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr Gly

225

230

235

240

Gln Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp

245

250

<210> 22

<211> 762

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: fusion of
sequence for a part of human ryudocan and a part of human fibroblast
growth factor 1

<220>

<221> CDS

<222> (1)..(762)

<400> 22

atg gcc ccc gcc cgt ctg ttc gcg ctg ctg ctg ttc ttc gta ggc gga 48

Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Leu Phe Phe Val Gly Gly

1

5

10

15

gtc gcc gag tcg atc cga gag act gag gtc atc gac ccc cag gac ctc 96
Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu
20 25 30

cta gaa ggc cga tac ttc tcc gga gcc cta cca gac gat gag gat gta 144
Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Pro Asp Asp Glu Asp Val
35 40 45

gtg ggg ccc ggg cag gaa tct gat gac ttt gag ctg tct ggc tct gga 192
Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly Ser Gly
50 55 60

gat ctg gat gac ttg gaa gac tcc atg atc ggc cct gaa gtt gtc cat 240
Asp Leu Asp Asp Leu Glu Asp Ser Met Ile Gly Pro Glu Val Val His
65 70 75 80

ccc ttg gtg cct cta gat aac cat atc cct gag agg gca ggg tct ggg 288
Pro Leu Val Pro Leu Asp Asn His Ile Pro Glu Arg Ala Gly Ser Gly
85 90 95

agc caa gtc ccc acc gaa ccc aag aaa cta gag gag aat gag gtt atc 336
Ser Gln Val Pro Thr Glu Pro Lys Lys Leu Glu Glu Asn Glu Val Ile
100 105 110

ccc aag aga atc tca ccc gtt gct aat tac aag aag ccc aaa ctc ctc 384
Pro Lys Arg Ile Ser Pro Val Ala Asn Tyr Lys Lys Pro Lys Leu Leu
115 120 125

tac tgt agc aac ggg ggc cac ttc ctg agg atc ctt ccg gat ggc aca 432
Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly Thr
130 135 140

gtg gat ggg aca agg gac agg agc gac cag cac att cag ctg cag ctc 480
Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu
145 150 155 160

agt gcg gaa agc gtg ggg gag gtg tat ata aag agt acc gag act ggc 528
Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly
165 170 175

cag tac ttg gcc atg gac acc gac ggg ctt tta tac ggc tca cag aca 576
Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr
180 185 190

cca aat gag gaa tgt ttg ttc ctg gaa agg ctg gag gag aac cat tac 624
Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Asn His Tyr
195 200 205

aac acc tat ata tcc aag aag cat gca gag aag aat tgg ttt gtt ggc 672
Asn Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly
210 215 220

ctc aag aag aat ggg agc tgc aaa cgc ggt cct cgg act cac tat ggc 720
Leu Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr Gly
225 230 235 240

cag aaa gca atc ttg ttt ctc ccc ctg cca gtc tct tct gat 762
Gln Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp
245 250

<210> 23

<211> 281

<212> PRT

<213> Artificial Sequence

<400> 23

Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Leu Phe Phe Val Gly Gly

1 5 10 15

Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu

20 25 30

Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Pro Asp Asp Glu Asp Val

35 40 45

Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly Ser Gly

50 55 60

Asp Leu Asp Asp Leu Glu Asp Ser Met Ile Gly Pro Glu Val Val His

65 70 75 80

Pro Leu Val Pro Leu Asp Asn His Ile Pro Glu Arg Ala Gly Ser Gly

85 90 95

Ser Gln Val Pro Thr Glu Pro Lys Lys Leu Glu Glu Asn Glu Val Ile
100 105 110

Pro Lys Arg Ile Ser Pro Val Glu Glu Ser Glu Asp Val Ser Asn Lys
115 120 125

Val Ser Met Ser Ser Thr Val Gln Gly Ser Asn Ile Phe Glu Arg Thr
130 135 140

Glu Val Ala Asn Tyr Lys Pro Lys Leu Leu Tyr Cys Ser Asn Gly
145 150 155 160

Gly His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val Asp Gly Thr Arg
165 170 175

Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser Ala Glu Ser Val
180 185 190

Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln Tyr Leu Ala Met
195 200 205

Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro Asn Glu Glu Cys
210 215 220

Leu Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn Thr Tyr Ile Ser
225 230 235 240

Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu Lys Lys Asn Gly

245

250

255

Ser Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln Lys Ala Ile Leu

260

265

270

Phe Leu Pro Leu Pro Val Ser Ser Asp

275

280

<210> 24

<211> 843

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: fusion of
sequence for a part of human ryudocan and a part of human fibroblast
growth factor 1

<220>

<221> CDS

<222> (1)..(843)

<400> 24

atg gcc ccc gcc cgt ctg ttc gcg ctg ctg ctg ttc gta ggc gga 48

Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Leu Phe Phe Val Gly Gly

1

5

10

15

gtc gcc gag tcg atc cga gag act gag gtc atc gac ccc cag gac ctc 96
Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu

20

25

30

cta gaa ggc cga tac ttc tcc gga gcc cta cca gac gat gag gat gta 144
Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Pro Asp Asp Glu Asp Val

35

40

45

gtg ggg ccc ggg cag gaa tct gat gac ttt gag ctg tct ggc tct gga 192
Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly Ser Gly

50

55

60

gat ctg gat gac ttg gaa gac tcc atg atc ggc cct gaa gtt gtc cat 240
Asp Leu Asp Asp Leu Glu Asp Ser Met Ile Gly Pro Glu Val Val His
65 70 75 80

ccc ttg gtg cct cta gat aac cat atc cct gag agg gca ggg tct ggg 288
Pro Leu Val Pro Leu Asp Asn His Ile Pro Glu Arg Ala Gly Ser Gly
85 90 95

agc caa gtc ccc acc gaa ccc aag aaa cta gag gag aat gag gtt atc 336
Ser Gln Val Pro Thr Glu Pro Lys Lys Leu Glu Glu Asn Glu Val Ile
100 105 110

ccc aag aga atc tca ccc gtt gaa gag agt gag gat gtg tcc aac aag 384
Pro Lys Arg Ile Ser Pro Val Glu Glu Ser Glu Asp Val Ser Asn Lys
115 120 125

gtg tca atg tcc agc act gtg cag ggc agc aac atc ttt gag aga acg 432
Val Ser Met Ser Ser Thr Val Gln Gly Ser Asn Ile Phe Glu Arg Thr

130 135 140

gag gtc gct aat tac aag aag ccc aaa ctc ctc tac tgt agc aac ggg 480
Glu Val Ala Asn Tyr Lys Lys Pro Lys Leu Leu Tyr Cys Ser Asn Gly

145 150 155 160

ggc cac ttc ctg agg atc ctt ccg gat ggc aca gtg gat ggg aca agg 528
Gly His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val Asp Gly Thr Arg

165 170 175

gac agg agc gac cag cac att cag ctg cag ctc agt gcg gaa agc gtg 576
Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser Ala Glu Ser Val

180 185 190

ggg gag gtg tat ata aag agt acc gag act ggc cag tac ttg gcc atg 624
Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln Tyr Leu Ala Met

195 200 205

gac acc gac ggg ctt tta tac ggc tca cag aca cca aat gag gaa tgt 672
Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro Asn Glu Glu Cys

210 215 220

ttg ttc ctg gaa agg ctg gag gag aac cat tac aac acc tat ata tcc 720
Leu Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn Thr Tyr Ile Ser

225 230 235 240

aag aag cat gca gag aag aat tgg ttt gtt ggc ctc aag aag aat ggg 768
Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu Lys Lys Asn Gly
245 250 255

agc tgc aaa cgc ggt cct cgg act cac tat ggc cag aaa gca atc ttg 816
Ser Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln Lys Ala Ile Leu
260 265 270

ttt ctc ccc ctg cca gtc tct tct gat 843
Phe Leu Pro Leu Pro Val Ser Ser Asp
275 280

<210> 25
<211> 172
<212> PRT
<213> Artificial Sequence

<400> 25
Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val
1 5 10 15

Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala
20 25 30

Arg Ala Asn Gly Ser Ala Asn Tyr Lys Lys Pro Lys Leu Leu Tyr Cys
35 40 45

Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val Asp

50 55 60

Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser Ala

65 70 75 80

Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln Tyr

85 90 95

Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro Asn

100 105 110

Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn Thr

115 120 125

Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu Lys

130 135 140

Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln Lys

145 150 155 160

Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp

165 170

<210> 26

<211> 516

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: fusion of sequence for a part of mouse fibroblast growth factor 6 and a part of human fibroblast growth factor 1

<220>

<221> CDS

<222> (1)..(516)

<400> 26

atg tcc cgg gga gca gga cgt gtt cag ggc acg ctg cag gct ctc gtc 48
Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val
1 5 10 15

ttc tta ggc gtc cta gtg ggc atg gtg gtg ccc tca cct gcc ggc gcc 96
Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala
20 25 30

cgc gcc aac ggc tcg gct aat tac aag aag ccc aaa ctc ctc tac tgt 144
Arg Ala Asn Gly Ser Ala Asn Tyr Lys Lys Pro Lys Leu Leu Tyr Cys
35 40 45

agc aac ggg ggc cac ttc ctg agg atc ctt ccg gat ggc aca gtg gat 192
Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val Asp
50 55 60

ggg aca agg gac agg agc gac cag cac att cag ctg cag ctc agt gcg 240
Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser Ala

65 70 75 80

gaa agc gtg ggg gag gtg tat ata aag agt acc gag act ggc cag tac 288
Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln Tyr

85 90 95

ttg gcc atg gac acc gac ggg ctt tta tac ggc tca cag aca cca aat 336
Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro Asn

100 105 110

gag gaa tgt ttg ttc ctg gaa agg ctg gag gag aac cat tac aac acc 384
Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn Thr

115 120 125

tat ata tcc aag aag cat gca gag aag aat tgg ttt gtt ggc ctc aag 432
Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu Lys

130 135 140

aag aat ggg agc tgc aaa cgc ggt cct cgg act cac tat ggc cag aaa 480
Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln Lys

145 150 155 160

gca atc ttg ttt ctc ccc ctg cca gtc tct tct gat 516
Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp

165 170

<210> 27

<211> 210

<212> PRT

<213> Artificial Sequence

<400> 27

Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val
1 5 10 15

Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala
20 25 30

Arg Ala Asn Gly Thr Leu Leu Asp Ser Arg Gly Trp Gly Thr Leu Leu
35 40 45

Ser Arg Ser Arg Ala Gly Leu Ala Gly Glu Ile Ser Gly Val Asn Trp
50 55 60

Glu Ser Gly Tyr Leu Val Gly Ile Lys Arg Gln Ala Asn Tyr Lys Lys
65 70 75 80

Pro Lys Leu Leu Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu
85 90 95

Pro Asp Gly Thr Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile
100 105 110

Gln Leu Gln Leu Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser
115 120 125

Thr Glu Thr Gly Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr
130 135 140

Gly Ser Gln Thr Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu
145 150 155 160

Glu Asn His Tyr Asn Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn
165 170 175

Trp Phe Val Gly Leu Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg
180 185 190

Thr His Tyr Gly Gln Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser
195 200 205

Ser Asp
210

<210> 28
<211> 630
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: fusion of sequence for a part of mouse fibroblast growth factor 6 and a part of human fibroblast growth 1

<220>

<221> CDS

<222> (1)..(630)

<400> 28

atg tcc cgg gga gca gga cgt gtt cag ggc acg ctg cag gct ctc gtc 48
Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val
1 5 10 15

ttc tta ggc gtc cta gtg ggc atg gtg gtg ccc tca cct gcc ggc gcc 96
Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala
20 25 30

cgc gcc aac ggc acg cta ctg gac tcc aga ggc tgg ggc acc ctc ttg 144
Arg Ala Asn Gly Thr Leu Leu Asp Ser Arg Gly Trp Gly Thr Leu Leu
35 40 45

tcc agg tct cga gct ggg cta gct gga gag att tcg ggt gtg aat tgg 192
Ser Arg Ser Arg Ala Gly Leu Ala Gly Glu Ile Ser Gly Val Asn Trp
50 55 60

gaa agc ggc tat ttg gtg ggc att aag cga cag gct aat tac aag aag 240
Glu Ser Gly Tyr Leu Val Gly Ile Lys Arg Gln Ala Asn Tyr Lys Lys

65	70	75	80
ccc aaa ctc ctc tac tgt agc aac ggg ggc cac ttc ctg agg atc ctt			288
Pro Lys Leu Leu Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu			
85	90	95	
cgc gat ggc aca gtg gat ggg aca agg gac agg agc gac cag cac att			336
Pro Asp Gly Thr Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile			
100	105	110	
cag ctg cag ctc agt gcg gaa agc gtg ggg gag gtg tat ata aag agt			384
Gln Leu Gln Leu Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser			
115	120	125	
acc gag act ggc cag tac ttg gcc atg gac acc gac ggg ctt tta tac			432
Thr Glu Thr Gly Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr			
130	135	140	
ggc tca cag aca cca aat gag gaa tgt ttg ttc ctg gaa agg ctg gag			480
Gly Ser Gln Thr Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu			
145	150	155	160
gag aac cat tac aac acc tat ata tcc aag aag cat gca gag aag aat			528
Glu Asn His Tyr Asn Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn			
165	170	175	
tgg ttt gtt ggc ctc aag aag aat ggg agc tgc aaa cgc ggt cct cg			576
Trp Phe Val Gly Leu Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg			

180 185 190

act cac tat ggc cag aaa gca atc ttg ttt ctc ccc ctg cca gtc tct 624
Thr His Tyr Gly Gln Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser
195 200 205

tct gat 630
Ser Asp
210

<210> 29
<211> 180
<212> PRT
<213> Artificial Sequence

<400> 29
Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val
1 5 10 15

Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala
20 25 30

Arg Ala Asn Gly Thr Leu Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu
35 40 45

Leu Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly
50 55 60

Thr Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln
65 70 75 80

Leu Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr
85 90 95

Gly Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln
100 105 110

Thr Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn Ala
115 120 125

Thr Pro Ala Pro His Tyr Asn Thr Tyr Ile Ser Lys Lys His Ala Glu
130 135 140

Lys Asn Trp Phe Val Gly Leu Lys Lys Asn Gly Ser Cys Lys Arg Gly
145 150 155 160

Pro Arg Thr His Tyr Gly Gln Lys Ala Ile Leu Phe Leu Pro Leu Pro
165 170 175

Val Ser Ser Asp
180

<210> 30

<211> 540

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: fusion of sequence for a part of mouse fibroblast growth factor 6, a part of human fibroblast growth factor 1 and an artificial sequence

<220>

<221> CDS

<222> (1)..(540)

<400> 30

atg tcc cgg gga gca gga cgt gtt cag ggc acg ctg cag gct ctc gtc 48
Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val

1

5

10

15

ttc tta ggc gtc cta gtg ggc atg gtg gtg ccc tca cct gcc ggc gcc 96
Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala

20

25

30

cgc gcc aac ggc acg cta ctg gac gct aat tac aag aag ccc aaa ctc 144
Arg Ala Asn Gly Thr Leu Leu Asp Ala Asn Tyr Lys Pro Lys Leu

35

40

45

ctc tac tgt agc aac ggg ggc cac ttc ctg agg atc ctt ccg gat ggc 192
Leu Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly

50	55	60	
aca gtg gat ggg aca agg gac agg agc gac cac att cag ctg cag			240
Thr Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln			
65	70	75	80
ctc agt gcg gaa agc gtg ggg gag gtg tat ata aag agt acc gag act			288
Leu Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr			
85	90	95	
ggc cag tac ttg gcc atg gac acc gac ggg ctt tta tac ggc tca cag			336
Gly Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln			
100	105	110	
aca cca aat gag gaa tgt ttg ttc ctg gaa agg ctg gag gag aac gct			384
Thr Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn Ala			
115	120	125	
act cca gct cca cat tac aac acc tat ata tcc aag aag cat gca gag			432
Thr Pro Ala Pro His Tyr Asn Thr Tyr Ile Ser Lys Lys His Ala Glu			
130	135	140	
aag aat tgg ttt gtt ggc ctc aag aag aat ggg agc tgc aaa cgc ggt			480
Lys Asn Trp Phe Val Gly Leu Lys Lys Asn Gly Ser Cys Lys Arg Gly			
145	150	155	160
cct cgg act cac tat ggc cag aaa gca atc ttg ttt ctc ccc ctg cca			528
Pro Arg Thr His Tyr Gly Gln Lys Ala Ile Leu Phe Leu Pro Leu Pro			

165

170

175

gtc tct tct gat

540

Val Ser Ser Asp

180